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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,013	07/19/2005	Yuxiang Zhou	051082-0102	2752
22428 7590 04/29/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER AJIBADE AKONAI OLUMIDE	
			ART UNIT 2617	PAPER NUMBER
			MAIL DATE 04/20/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/534,013

Applicant(s)

ZHOU, YUXIANG

Examiner

OLUMIDE T. AJIBADE AKONAI

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 1, 4, 5, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art (hereinafter AAPA)** in view of **Nguyen 6,947,758**.

Regarding **claims 1 and 7**, AAPA discloses a method for assigning (and searching) a mobile subscriber roaming number to a mobile subscriber (see page 1 of the specification, lines 24-27), wherein said mobile subscriber roaming number is a temporary number for routing which is assigned by a visitor location register, which the mobile subscriber is currently registered with, when the mobile subscriber is called (see page 1 of the specification, lines 24-28, page 2 of the specification, lines 13-17), said mobile subscriber roaming number comprises a country code, a number of a mobile

switching center and a visitor location register sub-number (page 2 of the specification, lines 24-31, MSRN=CC + MSC number + record number of MSRN information table).

AAPA does not specifically disclose, wherein in a Visitor location Register, the mobile subscriber roaming number is managed by a plurality of Visitor Location Register modules, characterized in that: said mobile subscriber roaming number comprises a Visitor Location Register module number, and said Visitor Location Register module number is utilized to directly determine (and find) the correspondence relationship between said assigned mobile subscriber roaming number and the Visitor Location Register module in said Visitor Location Register that manages said mobile subscriber roaming number.

Nguyen however, discloses, wherein in a Visitor location Register (VLR 740, see fig. 7, col. 10, lines 7-14), a Temporary Mobile Station Identification (see col. 7, lines 63-67) is managed by a plurality of Visitor Location Register modules (VLR 750,760,770, see fig. 7, col. 10, lines 7-14, 32-44), characterized in that: said Temporary Mobile Station Identification (TMSI, see col. 10, lines 35-37) comprises a Visitor Location Register module number (TMSI-Q, TMSI-R, TMSI-N with the VLR address embedded in the numbers, see fig. 7, col. 10, lines 45-67, col. 11, lines 1-4), and said Visitor Location Register module number is utilized to directly determine (and find) the correspondence relationship between said assigned Temporary Mobile Station Identification and the Visitor Location Register module (see col. 10, lines 45-67, col. 11, lines 1-4) in said Visitor Location Register that manages said mobile subscriber roaming number (VLR 750,760,770, see fig. 7, col. 10, lines 7-14, 32-44).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nguyen, by appending the MSRN with extra integers, into the system of AAPA for the benefit of identifying which VLR unit out of a plurality of VLR units a MSRN is assigned to a mobile subscriber is associated with.

Regarding **claim 4**, as applied to claim 1, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses wherein said visitor location register is a multi module clustered distributed real time database (see fig. 7, col. 10, lines 7-14).

Regarding **claim 5**, as applied to claim 1, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses wherein the length of the module number of said visitor location register module may be one bit or multiple bits (see col. 10, lines 45-66).

Regarding **claim 8**, as applied to claim 7, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses the said method comprising the following steps: based on said mobile subscriber roaming number, a Visitor Mobile Switching Center initiates a query to the Visitor Location Register module corresponding to said mobile subscriber roaming number (see col. 10, lines 45-67, col. 11, lines 1-4); said Visitor Location Register module searches the information of corresponding mobile subscriber based on said mobile subscriber roaming number and returns it to said Visitor Mobile Switching Center (see col. 10, lines 45-67, col. 11, lines 1-4).

Regarding **claim 10**, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses wherein said searching step further comprising: said Visitor Location Register module obtains the VLR sub-number in said mobile subscriber roaming number, and obtains the information of said mobile subscriber in the record of the mobile subscriber roaming number information table corresponded to said VLR sub-number and returns it to said Visitor Mobile Switching Center; said Visitor Location Register module releases said VLR sub-number (see fig. 7, col. 11, lines 1-14).

3. Claims 2, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art (hereinafter AAPA)** in view of **Applicant's Nguyen 6,947,758** as applied to claims 1 and 7 above, and further in view of **Lahtinen 6,148,200**.

Regarding **claims 2 and 9**, as applied to claims 1, 7 and 8, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses said Visitor Location Register forwards a request to one of the Visitor Location Register modules (see col. 11, lines 1-14); said Visitor Location Register module records the information corresponding to said mobile subscriber and obtains its corresponding VLR sub-number (TMSI-R+1, see col. 11, lines 1-14); said Visitor Location Register module generates a mobile subscriber roaming number (see col. 11, lines 1-14) said mobile subscriber roaming number comprising said VLR sub-number (see col. 10, lines 45-67), the module number of said Visitor Location Register module (see col. 10, lines 45-67, col. 11, lines 1-4). AAPA as modified by Nguyen does not specifically disclose the steps of, said Visitor Location Register receives from a Home Location Register a request to

assign a roaming number for a mobile subscriber; said mobile subscriber roaming number comprises a country code, and the number of a Mobile Switching Center where said mobile subscriber is in, said Visitor Location Register module returns said mobile subscriber roaming number to said Home Location Register.

Lahtinen, however discloses said Visitor Location Register (physical VLR see figs. 2 and 3, col. 3, lines 1-5) receives from a Home Location Register (HLR see fig. 3, col. 3, lines 13-20) a request to assign a roaming number (provide roaming number request, see fig. 1, col. 1, lines 52-56) for a mobile subscriber (MS, see fig. 3); said mobile subscriber roaming number comprises a country code (NCC, see col. 3, line 40), the number of a Mobile Switching Center where said mobile subscriber is in (NDC, see col. 3, line 41); said Visitor Location Register module returns said mobile subscriber roaming number to said Home Location Register (see col. 1, lines 59-67, col. 3, lines 40-54).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Lahtinen into the system of AAPA as modified by Nguyen for the benefit of reducing the load of the visitor location registers.

Regarding **claim 3**, as applied to claim 2, AAPA as modified by Nguyen and Lahtinen disclose the claimed limitation. Nguyen further discloses recording step further comprising: said Visitor Location Register module records the information of said mobile subscriber in an idle record in a mobile subscriber roaming number information table,

and obtains the VLR sub-number corresponding to said record (see fig. 7, col. 10, lines 45-63).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art (hereinafter AAPA)** in view of **Nguyen 6,947,758** as applied to claim 1, and further in view of **Holmes 6,039,624**.

Regarding **claim 6**, as applied to claim 1, AAPA as modified by Nguyen discloses the claimed limitation except wherein the length of said mobile subscriber roaming number is not longer than 15 bits.

In an analogous art, Holmes discloses wherein the length of said mobile subscriber roaming number is not longer than 15 bits (see col. 4, lines 62-67, col. 5, line 1).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Holmes, by have a TMSI of length 4, 6, or 10 bits, into the system of AAPA as modified by Nguyen for the purpose of maximizing the number of TMSI numbers that may be transmitted in a paging slot.

Response to Arguments

5. Applicant's arguments filed January 29, 2009 have been fully considered but they are not persuasive. Regarding claims 1 and 7, the applicant's representative asserts that Nguyen fails to disclose "a plurality of visitor location register modules which manage different mobile subscriber roaming numbers respectively". The examiner respectfully disagrees. The applicant's prior art already discloses that the mobile subscriber roaming number, MSRN, contains the country code CC, MSC number, and

the record number of MSRN information table. The inventive concept is addition of the VLR module number (see page 7 of the specification, lines 18-22). The purpose of the VLR module number is so that a mobile switching center can use the MSRN initiate a query to the VLR module corresponding to the mobile subscriber roaming number that contains the said VLR module number (see page 6 of the specification, lines 7-20).

Nguyen discloses a having a temporary mobile subscriber identification number (TMSI number, see col. 7, lines 63-66); wherein an integer is added to the end of the TMSI number in order to identify which VLR unit the TMSI is associated with (see col. 10, lines 7-15, and lines 45-63). When the MSC receives the TMSI number with the integer added to the TMSI number, it is able to identify the VLR unit associated with the TMSI number, and the MSC access the VLR unit (see col. 10, lines 64-67 to col. 11, lines 1-14). The examiner therefore maintains that since it was already prior art teaching that a number (TMSI) can have an integer appended to it in order to identify a VLR unit associated with the TMSI, it would have been obvious to append the MSRN by adding number(s) or digit(s) in order to identify the VLR that is associated MSRN. The Applicant's admitted prior art, as modified by Nguyen, thus reads on claims 1 and 7.

Regarding claim 2, Lahtinen is used to disclose the limitation of receiving from a Home Location Register HLR a request to assign a roaming number for a mobile subscriber, and the wherein the Visitor Location Register module returns the mobile subscriber roaming number to the Home Location Register (see col. 1, lines 59-67, col. 3, lines 40-54). The examiner thus maintains that the 35 U.S.C. § 103(a) rejection of claims 1-10 is proper. Claims 1-10 stand rejected.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUMIDE T. AJIBADE AKONAI whose telephone number is (571)272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

OA

***/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617***